

Handwritten mark



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/092,499 | 03/08/2002 | Noriyuki Miura | OKI.313 | 1269 |

7590 12/02/2003
VOLENTINE FRANCOS, PLLC
12200 Sunrise Valley Drive Suite 150
Reston, VA 20191

EXAMINER

LE, DUNG ANH

ART UNIT PAPER NUMBER

2818

DATE MAILED: 12/02/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|------------------------|---------------------|--|
| Office Action Summary | Application No. | Applicant(s) | |
| | 10/092,499 | MIURA, NORIYUKI | |
| | Examiner | Art Unit | |
| | DUNG A LE | 2818 | |

-- The MAILING DATE of this communication appears on the cover sheet with the corresponding address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 2 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☒ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☐ Claim(s) ____ is/are rejected.
- 7) ☒ Claim(s) 1-9 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3/8/2002</u> | 6) <input type="checkbox"/> Other: _____ |

DETAIL ACTION

Priority

Acknowledge is made of applicants' claim for foreign priority base on an application 068895/2001 filed in Japan on 03/12/2001.

It is noted that Applicants have filled a certified copy of said application as required by U.S.C 119, which papers have been placed of record in the file.

Oath/Declaration

The oath/declaration filed on 3/8/2002 is acceptable.

Information Disclosure Statement

This office acknowledges of the following items from the Applicant:

Information Disclosure Statement (IDS) filed on 3/8/2002 and made of record.

The references cited on the PTOL 1449 form have been considered.

This application is in condition for allowance except for the following formal matters:

- i) The drawings are objected to for the following reason:

Figures 19(a) –23(b) are not designated by a legend such as "Prior Art". The Legend is necessary in order to clarify what applicant's invention is (see MPEP § 608.02g).

ii) The specification is objected to for the following reason:

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed (see MPEP § 606.01).

A new abstract is required that is clearly indicative the invention to which the claims are directed.

Note that, the claims are directed to a method of making a semiconductor device instead of to a semiconductor device.

The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

iii) Claim 8, line 9, page 23, it is requested that Applicants spell out the acronym "Tsoi" so as to avoid any possible confusion as to the meaning of this term. Appropriate correction is required.

Reasons for Indication of Allowable Subject Matter

Claims 1- 9 would be allowed. The following is an examiner's statement of reason for allowance:

Set of claims 1-2 and 5-7, none of the references of record teaches or suggests the claimed Method of manufacturing semiconductor having the step of implanting impurity ions into the silicon layer of the SOI substrate such that a peak ion concentration along a vertical depth of the silicon layer is located between an intermediate horizontal plane of the silicon layer and the lower surface of the silicon layer inclusive, wherein the intermediate horizontal plane extends horizontally within the silicon layer at half a vertical depth of the silicon layer and among other steps as claimed in independent claims 1 and 5.

Set of claims 3-4, none of the references of record teaches or suggests the claimed Method of manufacturing semiconductor having the step of implanting impurity ions into the silicon layer of the SOI substrate at an oblique angle relative the upper surface of the silicon layer; wherein the impurity ions are implanted such that a peak ion concentration along a vertical depth of the silicon layer is located between an intermediate horizontal plane of the silicon layer and the lower surface of the silicon layer inclusive, and wherein the intermediate horizontal plane extends horizontally within the silicon layer at half a vertical depth of the silicon layer and among other steps as claimed in independent claim 3.

Set of claims 8- 9, none of the references of record teaches or suggests the claimed Method of manufacturing semiconductor having the step of implanting impurity ions into the silicon layer of the SOI substrate such that a peak ion concentration along a

vertical depth of the silicon layer is located at the vertical depth $1/2 T_{soi} \pm 0.1 T_{soi}$ of the silicon layer, where T_{soi} is an entire vertical depth of the silicon layer and among other steps as claimed in independent claim 8.

If Applicants are aware of better art than that which has been cited, they are required to call such to attention of the examiner.

Prosecution on the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

A shortened statutory period for reply to this action is set to expire **TWO MONTHS** from the mailing date of this letter.

When responding to the office action, Applicants' are advice to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung A. Le whose telephone number is 703-306-5797. The examiner can normally be reached on Monday-Friday 8:00am-5: 30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 703-308-4910. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Dung A. Le
P. Examiner

